EPA Workshop for Environmental Justice Communities on Proposed Updates to Emission Standards for Refineries

Tuesday, July 1, 2014
9:00 am – 4:30 pm (8:30 am check-in)
The California Endowment's Oakland Conference Center
1111 Broadway, 7th Floor, Oakland, CA 94607

Workshop Objectives

- Provide an in-depth review of the proposed refinery emission standards rule (refinery rule) with a focus on technical issues.
- Provide EPA staff with a better understanding of key community concerns about the refineries.
- Enhance the effectiveness of the public engagement process during this rulemaking.

Tuesday July 1, 2014	
8:30 am – 9:00 am	**Arrival and Registration**
9:00 am – 9:20 am	**Welcome, Introductions and Overview** **Welcome and Introductions** *-Laura McKelvey, U.S. EPA, Office of Air Quality Planning and Standards* *-Deldi Reyes, U.S. EPA, Region 9* **Rules of Engagement During the Open Comment Period** *-Laura McKelvey, U.S. EPA, Office of Air Quality Planning and Standards* **Workshop and Agenda Overview and Ground Rules** *Facilitator: Vernice Miller-Travis, Skeo Solutions*
9:20 am – 9:50 am	**Experiences and concerns of fenceline communities and the potential for communities and advocates to impact the refinery rule** *-Dr. Henry Clark, West County Toxics Coalition* *-Jesse Marquez, Coalition for a Safe Environment* *-Patrice Lee, Alaskan Community Action on Toxics*
9:50 am – 10:50 am	**Context and Evolution of the Proposed Refinery Rule** *Facilitator: Vernice Miller-Travis, Skeo Solutions* • **Background for the proposed refinery rule** *-Laura McKelvey, U.S. EPA, Office of Air Quality Planning and Standards* *-Brenda Shine, U.S. EPA, Office of Air Quality Planning and Standards* - Clean Air Act and the evolution of the refinery rule - Purpose of the refinery rule - EPA's EJ policies • **Overview of the Clean Air Act authorities and refinery rule** • **Brief synopsis of the proposed amendments in the refinery rule** - Flares - Delayed cokers

	- Storage tanks - Startup, Shutdown and Malfunction (SSM) exemptions - Fenceline monitoring • **Discussion of other technical issues related to the refinery rule** *Facilitator: Vernice Miller-Travis, Skeo Solutions* • **Prioritizing the issues for "Drilling Down on Key Issues" dialogue** *Facilitator: Vernice Miller-Travis, Skeo Solutions*
10:50 am – 12:00 pm	**Drilling Down on Key Issues** *(two-way facilitated dialogue about key issues and concerns identified in previous session)* *Facilitator: Vernice Miller-Travis, Skeo Solutions* • Discussion topics - EPA rationale for rule change - How would proposed rule change the identified key issues? • Question and answer dialogue • Presentations by participants, as relevant to the issue
12:00 pm – 12:45 pm	**BREAK/LUNCH**
12:45 pm – 3:30 pm	**Drilling Down on Key Issues *(continued)*** *(two-way facilitated dialogue about key issues and concerns)* *Facilitator: Vernice Miller-Travis, Skeo Solutions*
3:30 pm – 4:15 pm	**Next Steps** *Facilitator: Vernice Miller-Travis, Skeo Solutions* • Public hearing and commenting process • What happens to comments submitted by the public?
4:15 – 4:30 pm	**Wrap-up and Conclusion**

Attendee List 7-9-14

Last Name	First Name	Organization Affiliation	Email Address	Address
Bailey	Diane	NRDC	dbailey@nrdc.org	111 Sutter St. 20th Floor, San Francisco, California 94002
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Shine	Brenda	EPA OAQPS		
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A Brief Overview of the: CAA authorities Proposed Refinery Residual Risk and Technology Review

Public Outreach Presentation
July 1, 2014

U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC

Purpose

- Provide background information on the rulemaking process
- Inform the public on Proposed Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards that were signed by the Administrator on May 15, 2014. Describe how written comments can be submitted to the docket.
- **Note:** This webinar is intended to be an educational overview of the proposal and does not cover all of the proposal details. We will ***not*** be taking comments on the rule during this webinar. Please refer back to the proposal when crafting your written comments.

Section 112 of the Clean Air Act
Overview

- Establishes requirements for setting national emission standards for hazardous air pollutants (NESHAP)
- A hazardous air pollutant is defined as “any air pollutant listed pursuant to subsection (b) of this section [CAA section 112]”
  - There are currently 189 pollutants on the HAP list (the complete list is available online at: http://www.epa.gov/ttn/atw/overview.html)
- Stationary sources are broken down into two categories: major and area
  - A major source “means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants”
  - An area source “means any stationary source of hazardous air pollutants that is not a major source”

Regulation of Toxic Pollutants

- The Clean Air Act listed 189 (now 183) toxic air pollutants (that may cause cancer or serious health problems)
- There are literally thousands of sources of toxic air pollutants (also called hazardous air pollutants or HAPs)
- Sources range from gigantic oil refineries to the dry cleaner on the corner, as well as mobile sources (cars, trucks, planes, trains)
- Clean Air Act requires EPA to set standards for specific source types

Clean Air Act Requirements

- **New Source Performance Standards (NSPS)**
  - CAA section 111(b) requires EPA to set and periodically review, emission standards for new sources of criteria air pollutants (CAP), volatile organic compounds (VOC) and other pollutants
- **Maximum Achievable Control Technology (MACT)**
  - CAA section 112 requires EPA to:
    - Set emission standards for toxic air pollutants from stationary sources reflecting the maximum achievable control technology (MACT) based on the best performing facilities in an industry
    - Conduct residual risk and technology reviews (RTR) of these MACT standards

Section 112 of the Clean Air Act
Emission Standards

- Per section 112(d), “the Administrator shall promulgate regulations establishing emission standards for each category or subcategory of major sources and area sources of hazardous air pollutants listed for regulation pursuant to subsection (c) of this section in accordance with the schedules provided in subsection (c) and (e) of this section”

- Emission standards “require the maximum degree of reduction in emissions of the hazardous air pollutants…the maximum degree of reduction in emissions that is deemed achievable for new sources in a category or subcategory shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source, as determined by the Administrator”
  - The above is speaking to the maximum achievable control technology or MACT program

Section 112 of the Clean Air Act
MACT Program

- Under the MACT program emission limits for existing sources are established by:
  - Examining “the average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emissions information)… or by examining “the average emission limitation achieved by the best performing 5 sources (for which the Administrator has or could reasonably obtain emission information) in the category or subcategory for categories or subcategories with fewer than 30 sources)
- For area sources the Administrator may “elect to promulgate standards or requirements applicable to sources in such categories or subcategories which provide for the use of generally available control technologies or management practices by such sources to reduce emissions of hazardous air pollutants”

Section 112 of the Clean Air Act
Risk and Technology Review (RTR)

- Residual risk review and technology review required within 8 years of promulgation of MACT standards
- 2-step risk analysis
  1. Determine if risk is acceptable considering health information only, and if not acceptable, tighten standards so risks are acceptable
  2. Determine if standards provide an ample margin of safety, which considers health info, costs and feasibility
- Risk review includes inhalation risk assessment (cancer and non-cancer) and screens to assess multipathway, whole facility, acute and environmental risks
  - Can perform refined multipathway assessments in limited cases if screens show potential multipathway human health risk
- Technology review takes into account new developments in practices, processes and control technologies considering cost and feasibility
- We also consider previously unregulated processes and HAP, and we make technical corrections

Available Resources

- Overview of section 112 (this includes the list of HAPs): http://www.epa.gov/ttn/atw/overview.html
- For further explanation of major and area sources and a list of source categories please visit: http://www.epa.gov/ttn/atw/pollsour.html
- For a listing of all of the NESHAP/MACT final rules please visit: http://www.epa.gov/ttn/atw/mactfnlalph.html
- For an overview of the risk and technology review program please visit: http://www.epa.gov/ttn/atw/rrisk/rtrpg.html
- Plain English guide to Clean Air Act: http://www.epa.gov/air/caa/peg/
- State, local, tribal and federal partnerships: http://www.epa.gov/ttn/atw/stprogs.html

Clean Air Act Requirements (cont.)

- EPA is required to conduct two reviews and update the existing standards, if necessary
  - **Residual Risk Assessment**: To determine whether additional emission reductions are warranted to protect public health or the environment; this is a one-time requirement
  - **Technology Reviews**: To determine if better emission control approaches, practices or processes are now available; required every eight years

Past Rulemakings On the Refinery Sector

NSPS

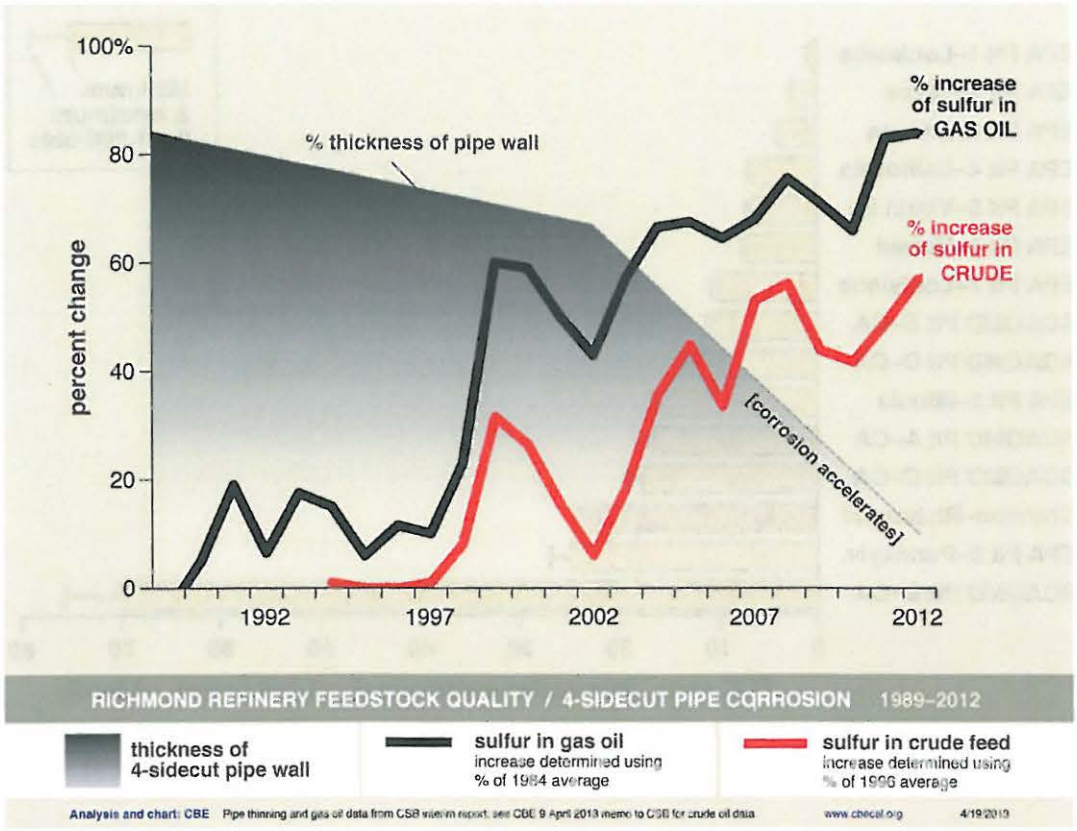
- 1974 NSPS – covers fuel gas combustion devices, FCCU and sulfur plants
- 2008 and 2012 NSPS – covers same above and delayed cokers, flares and process heaters specifically

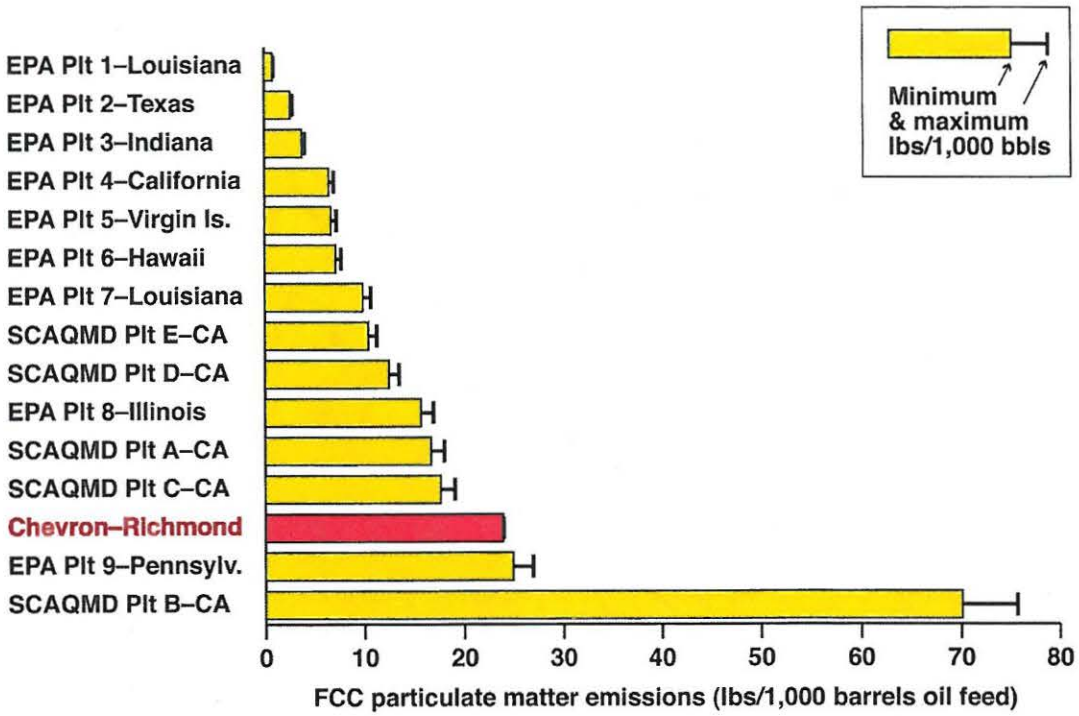
MACT

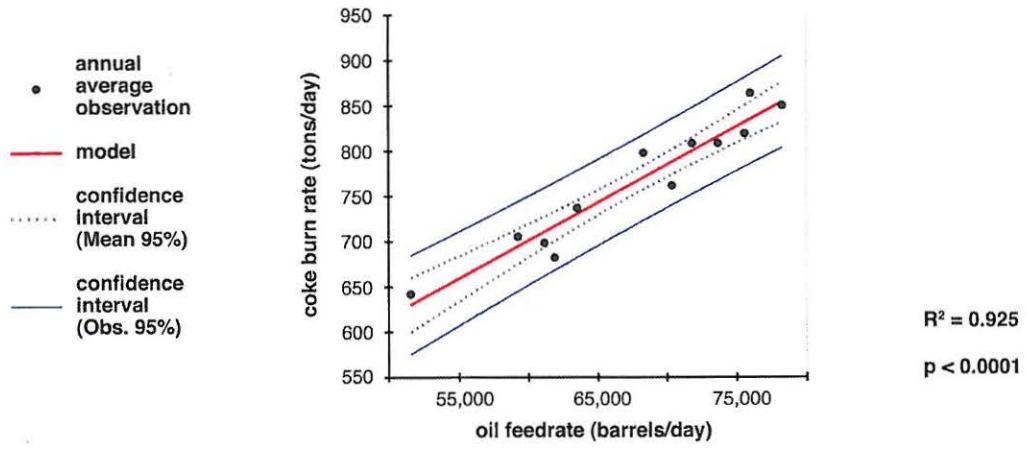
- Promulgated 2 MACT standards for refineries
  - 1995 MACT (known as MACT 1) covers non-combustion or evaporative sources, such as equipment leaks, tanks, wastewater, miscellaneous process vents; amended to cover heat exchange systems, including cooling towers
  - 2002 MACT (known as MACT 2) covers combustion sources: catalytic cracking units, catalytic reforming units and sulfur recovery units

Risk and Technology Review (RTR)

- 2007 – proposed risk and technology review amendments for non-combustion sources
- 2009 – withdrew amendments related to risk review due to insufficient data; amendments promulgated for heat exchanger systems and amended in 2013


100%
80
60
40
20
0
percent change
1992
1997
2002
2007
2012
% thickness of pipe wall
% increase of sulfur in GAS OIL
% increase of sulfur in CRUDE
[corrosion accelerates]
RICHMOND REFINERY FEEDSTOCK QUALITY / 4-SIDECUT PIPE CORROSION 1989–2012
thickness of 4-sidecut pipe wall
sulfur in gas oil
increase determined using % of 1984 average
sulfur in crude feed
increase determined using % of 1996 average
Analysis and chart: CBE Pipe thinning and gas oil data from CSB interim report, see CBE 9 April 2013 memo to CSB for crude oil data
www.cbecal.org
4/19/2013


EPA Plt 1–Louisiana
EPA Plt 2–Texas
EPA Plt 3–Indiana
EPA Plt 4–California
EPA Plt 5–Virgin Is.
EPA Plt 6–Hawaii
EPA Plt 7–Louisiana
SCAQMD Plt E–CA
SCAQMD Plt D–CA
EPA Plt 8–Illinois
SCAQMD Plt A–CA
SCAQMD Plt C–CA
Chevron–Richmond
EPA Plt 9–Pennsylv.
SCAQMD Plt B–CA
Minimum & maximum lbs/1,000 bbls
0
10
20
30
40
50
60
70
80
FCC particulate matter emissions (lbs/1,000 barrels oil feed)


annual average observation
model
confidence interval (Mean 95%)
confidence interval (Obs. 95%)
coke burn rate (tons/day)
950
900
850
800
750
700
650
600
550
55,000
65,000
75,000
oil feedrate (barrels/day)
R² = 0.925
p < 0.0001

Coalition For A Safe Environment

Petroleum Refinery Sector Risk and Technology Review
&
New Source Performance Standards

Public Comments

6-30-2014

1. **Community Fenceline Monitoring**

   a. Mandatory Real-Time 24/7 Fenceline Monitoring.
   b. Mandatory Fenceline Monitoring Data posted on Federal/State/AQMD agency websites in real time.
   c. Mandatory website on-line capability to print and download reports of each facility per Flare incident, weekly, monthly, annually and 5, 10, 20 year reports.
   d. Mandatory that all air emissions and chemicals be monitored not as select few.

2. **Flaring**

   a. Mandatory MACT to prevent Flaring.
   b. Mandatory MACT to eliminate and reduce Flaring such as Vapor Recovery Systems.
   c. Ban on Routine Flaring.
   d. Mandatory Flaring Reduction Plan.
   e. Annual review of Flaring Reduction Plan.
   f. Mandatory Enforcement Program & Penalties for failure to achieve Flare Reduction Plan requirements.
   g. Mandatory Combustion Efficiency Standards.
   h. Mandatory back-up power to prevent Flaring.
   i. Mandatory accurate reporting of Flaring incident emissions.
   j. Mandatory Public Health & Environmental Mitigation Fund based on $ 500,000. per metric ton of released chemical emissions.
   k. Prohibition of annual averaging of emission data to hide significant emission release spikes and public exposure to major flaring incidents, fires and explosions.

3. **More Stringent Pollution Control From All Sources**

   a. Identify all oil refinery emission sources.
   b. Identify the MACT for each emission source.
   c. Mandatory MACT for each emission source.
   d. Mandatory that all oil refinery emission sources be monitored in Real-Time 24/7.
   e. Mandatory inventories of all emission sources.
   f. Mandatory Maintenance & Parts Replacement Plan & Schedule.
   g. Incorporation of the 3-Strikes Rule for reoccurring parts and systems breakdowns.

4. **Close All Unlawful Loopholes**

   a. Void all existing exemptions and waivers.
   b. Eliminate Startup, shutdown & malfunction exemptions.
   c. Eliminate all storage tank pressure relief valves and bypass exemptions.

5. **Need Public Health Impacts Research Data On All Chemicals**

   a. Determination of all carcinogenic public health impacts.
   b. Determination of all neurological public health impacts.
   c. Determination of all non-carcinogenic public health impacts.
   d. Determination of all bio-cumulative public health impacts.

6. **Phase-Out Plan Of Highly Dangerous Chemicals**

   a. Identification of the most hazardous and toxic chemicals.
   b. Mandatory Hazardous & Toxic Chemical Phase-Out Plan.

7. **Public Health & Safety Limits Of All Chemicals Per National Academy of Sciences**

   a. Mandatory public health exposure limit on all chemicals.
   b. Mandatory public safety limit on all potential hazard scenarios.

8. **Public Health Cumulative Risk Assessments**

   a. Mandatory Health Impact Assessment (HIA) & Public Health Survey to be included in Health Risk Assessments at every oil refinery.
   b. Mandatory Up-Dated Health Risk Assessments every four years.
   c. US EPA sponsorship of public health research on oil refinery fenceline communities. There is little to no public health research on US oil refinery communities. Ban petroleum industry sponsored public health studies.

9. **Current Risk Assessment Deficiencies**

   a. Mandatory assessment of extra harm and risk to highly vulnerable sensitive receptors such as children, seniors, pregnant woman, persons with pre-existing health conditions and Environmental Justice Communities.
   b. Mandatory inclusion of inhalation risk from all chemicals. Currently excluded arsenic & nickel etc.
   c. A Life Time Cancer Risk of 100 in 1 million is not acceptable for any single chemical or cumulative chemicals.
   d. The USEPA's use of the term "degree of uncertainty," is unacceptable. The USPEA must provide a method or sponsor a research entity to establish the most accurate certainty, based on the best available scientific research. The USEPA must incorporate the Precautionary Principle when in doubt.

Coalition For A Safe Environment
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Overview of the Clean Air Act and the Proposed Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards

Public Outreach Presentation
San Francisco, CA
July 1, 2014

U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC

Purpose

- Today's presentation is part of EPA's overall outreach strategy to stakeholders; today, we will:
  - Provide information on the Clean Air Act requirements
  - Describe previous EPA regulations done for the refining sector
  - Inform the public on Proposed Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards that were signed by the Administrator on May 15, 2014.
- **Note:** This presentation is intended to be an educational overview of the proposal and does not cover all of the proposal details. We will ***not*** be taking comments on the rule during this presentation. However, if you plan to submit comments, please follow the guidelines outlined in the upcoming public/written comment period sections of this workshop.

Overview

- Clean Air Act Requirements
- Overview of the Refinery Source Category
- Refineries Emit a Wide Range of Pollutants
- Health Effects of Specific Pollutants
- HAP Emitted with Existing Controls in Place
- Past Rulemakings on the Refining Source Category
- Overview of Proposed Rule
- Proposed Amendments
- What Does a Residual Risk Analysis Show?
- What is Environmental Justice?
- Demographic Analyses
- Fenceline Monitoring Case Study
- Q&A

Clean Air Act (CAA) Requirements

- **New Source Performance Standards (NSPS)**
  - CAA section 111(b) requires EPA to set and periodically review, emission standards for new sources of criteria air pollutants (CAP), volatile organic compounds (VOC) and other pollutants
- **Maximum Achievable Control Technology (MACT)**
  - CAA section 112 requires EPA to:
    - Set emission standards for toxic air pollutants from stationary sources reflecting the maximum achievable control technology (MACT) based on the best performing facilities in an industry
    - Conduct residual risk and technology reviews (RTR) of these MACT standards

Clean Air Act Requirements (cont.)

- EPA is required to conduct two reviews and update the existing standards, if necessary
  - **Residual Risk Assessment**: To determine whether additional emission reductions are warranted to protect public health or the environment; this is a one-time requirement
  - **Technology Reviews**: To determine if better emission control approaches, practices or processes are now available; required every eight years

Overview of Refinery Source Category

- There are currently 142 large (major sources) and 7 small (area source) petroleum refineries in the United States
- There are 36 small businesses that own petroleum refineries
- Refineries are responsible for 20,000 tons per year hazardous air pollutant (HAP) emissions
- In 2011 EPA completed first-ever comprehensive information collection request
- This proposed rulemaking includes both MACT and NSPS standards
  - Risk and Technology Review (RTR) for MACT CC and MACT UUU
  - Technical corrections to NSPS Ja resulting from issues raised by API

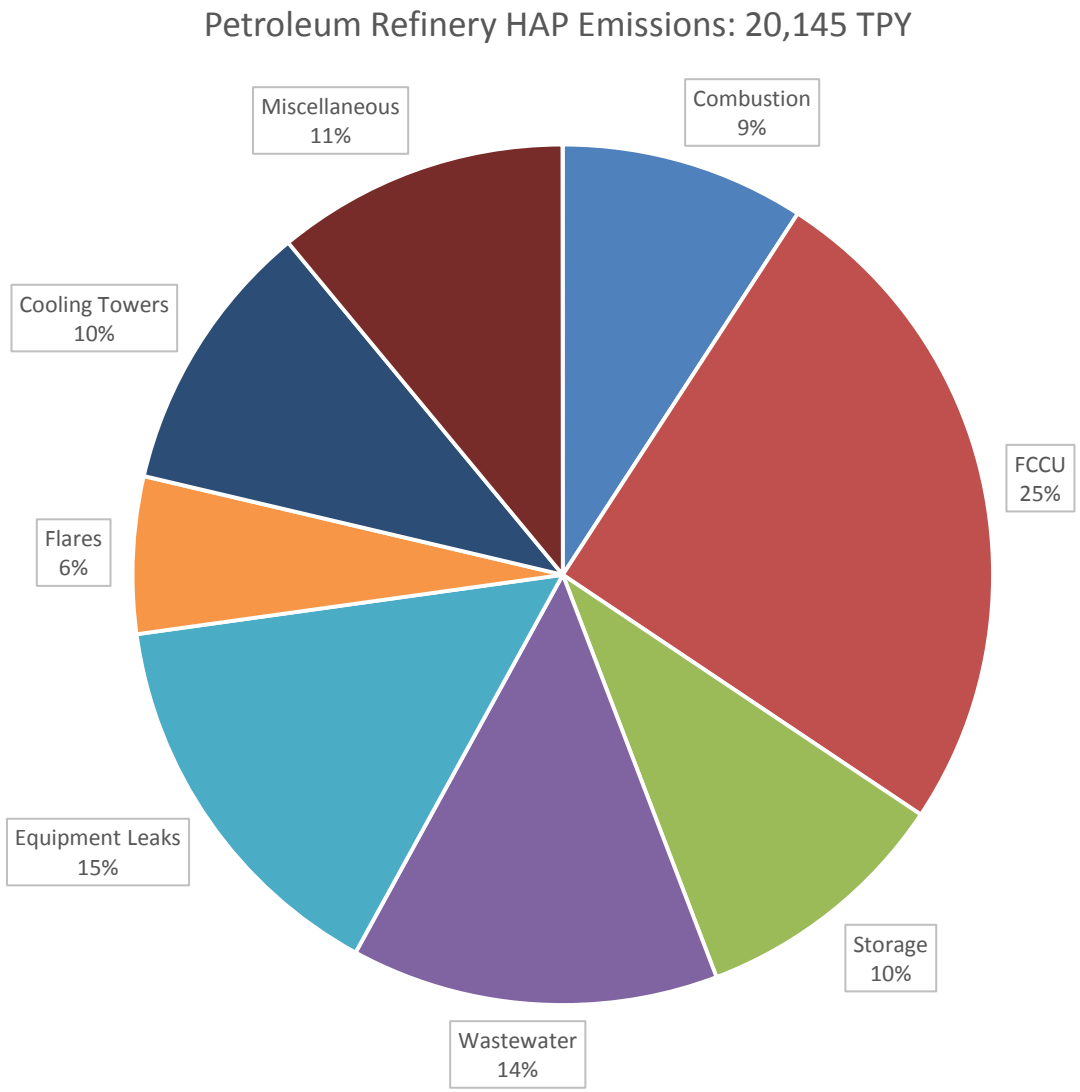
Refineries Emit a Wide Range of Pollutants

- Criteria Air Pollutants (CAP)
  - Sulfur dioxide (SO_2)
  - Oxides of Nitrogen (NO_X)
  - Carbon Monoxide (CO)
  - Particulate Matter (PM)
- Volatile Organic Compounds (VOC)
  - Organic compounds that are photochemically reactive
- Hazardous Air Pollutants (HAP)
  - Carcinogenic HAP, including benzene, naphthalene,1,3-butadiene, polycyclic aromatic hydrocarbons (PAH)
  - Non-carcinogenic HAP, including hydrogen fluoride (HF) and hydrogen cyanide (HCN)
  - Persistent bioaccumulative HAP, including mercury
- Other Pollutants
  - Greenhouse gases (GHG)
  - Hydrogen sulfide (H_2S)

Health Effects of Specific Pollutants

Compound	Acute	Chronic
Benzene	Neurological effects, irritation of the eye, skin and respiratory tract	Blood disorders (reduced number of red blood cells and aplastic anemia), cancer
PAHs	Skin disorders, depression of the immune system	Skin disorders (dermatitis, photosensitization), depression of the immune system, damage to the respiratory tract, cataracts, cancer
Nickel	Damage to the lungs and kidneys, gastrointestinal distress, disfunction of the immune system	Dermatitis, asthma like syndrome, decreased lung function, disfunction of immune system, cancer
Hydrogen Cyanide	Eye irritation, headaches, confusion, gastrointestinal distress, death	Eye irritation, headaches, fatigue, chest pains, nosebleeds

How much HAP do these sources emit with existing controls in place?



Past Rulemakings On the Refinery Sector

NSPS

- 1974 NSPS – covers fuel gas combustion devices, FCCU and sulfur plants
- 2008 and 2012 NSPS – covers same above and delayed cokers, flares and process heaters specifically

MACT

- Promulgated 2 MACT standards for refineries
  - 1995 MACT (known as MACT 1) covers non-combustion or evaporative sources, such as equipment leaks, tanks, wastewater, miscellaneous process vents; amended to cover heat exchange systems, including cooling towers
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Risk and Technology Review (RTR)

- 2007 – proposed risk and technology review amendments for non-combustion sources
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Leading Up to this Proposal….

- Finalized flare minimization requirements in NSPS Ja in 2012
  - Most refinery flares will be affected in the next few years
  - In addition to minimization, requires flow and sulfur monitors on flares
- Recent PFTIR tests indicate reasonable operating envelope for good combustion efficiency for flares
  - Peer review in 2012
- ICR effort in 2011 to collect data on
  - Processes, Equipment, & Controls
  - Emissions Inventories
    - Development and public comment on emission estimation protocol CY2010
  - Feed (crude oil) sampling characteristics
  - Emissions Source Testing

Overview of Proposed Rule

- The EPA is proposing:
  - Emission control requirements for storage tanks, flares and delayed coking units at petroleum refineries
  - Fenceline standard that sets a benzene action level and monitoring of the fenceline as a development in practices for managing emissions of toxic pollutants from fugitive sources
  - To eliminate exemptions during periods of startup, shutdown and malfunction
  - Technical corrections and clarifications to the 2008 Petroleum Refinery New Source Performance Standards

Proposed Amendments

- Flares: Establish more stringent operating requirements to ensure good combustion is achieved. These operating requirements will require facilities to:
  - Measure & monitor the flow of waste gas going to the flare
  - Measure & monitor the content of the waste gas going to the flare
  - Measure & monitor any air or steam added into the flare
- Storage Tanks: Upgrade storage tank controls and lower applicability thresholds
  - Upgrade roof deck fitting controls (gasketed covers for roof openings, sleeve and wipers for guide poles)
  - Require control of tanks >20,000 gal and >1.9 psi or >40,000 gallons and >.75 psi
  - Reference Part 63 Subpart WW and SS (standard standards)
- Delayed Cokers (DCU): Do not allow emissions to the atmosphere from the steam vent until the drum pressure is below 2 psig (pounds per square inch gauge)

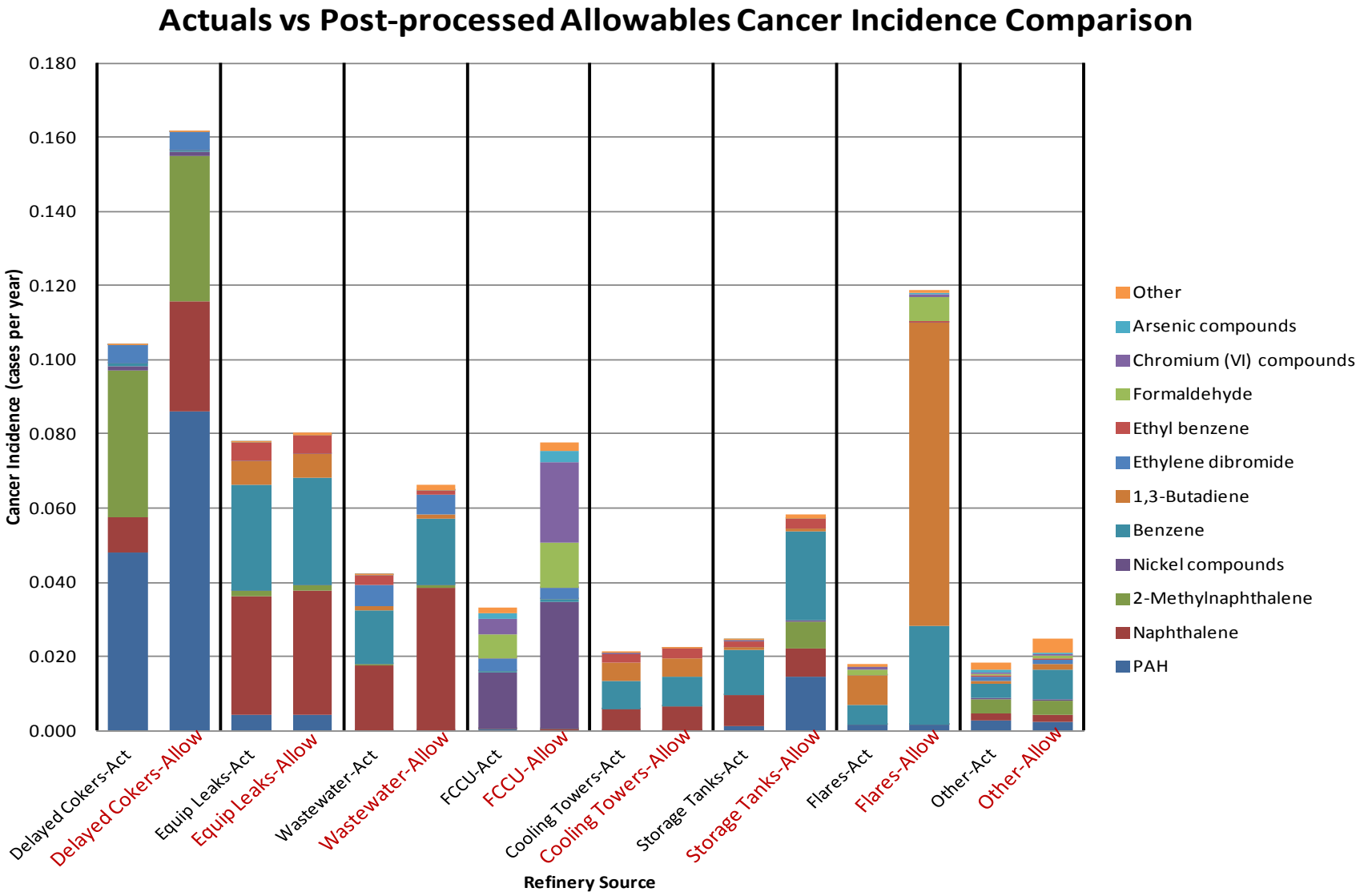
Proposed Amendments

- Fenceline Monitoring:
  - Deploy passive monitors surrounding the refinery at the fenceline
  - Using 2 week average concentration readings, calculate annual average benzene concentration and compare against action level
  - Conduct root cause analysis and corrective action upon exceedances of the action level; 9 µg/m^3
- Startup, Shutdown and Malfunction (SSM)
  - Propose to remove SSM exemptions and add limits for certain sources during startup and shutdown
  - Bypasses and discharges of toxic emissions through pressure relief devices are a violation of standard; requirements to monitor discharges via direct monitoring or monitoring of operating conditions

What Does a Residual Risk Analysis Show?

- Risk deemed to be “acceptable” under CAA Section 112(f)
- Highest maximum individual risk (MIR) is estimated at 60 in a million (actuals) and 100 in a million (allowables)
- Sector-wide population at risk greater than 1 in 1 million is predicted at 5,000,000; Highest MIR driven by equipment leaks from naphthalene and benzene; cancer incidence of 0.3 cases/year driven by PAHs from DCU
- Analysis estimates that maximum Hazard Index (HI) of 0.9 from HCN from FCCU
- Maximum acute non-cancer risk predicted a hazard quotient (HQ) of 5 due to emissions of nickel from FCCU
- Analysis estimates that proposed amendments for DCU and storage tanks result in 1.4 MM fewer people with risks greater than 1-in-1 million and reduce cancer incidence about 18%

Cancer Incidence By Source By HAP



What Is Environmental Justice?

- EPA defines Environmental Justice (EJ) as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies”

- Executive Order ***Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*** [E.O. 12898] was signed by President Clinton on February 16, 1994, and calls for federal agencies

“***to the greatest extent practicable and permitted by law, to identify . . . and address . . . as appropriate, disproportionately high and adverse human health or environmental effects of agency programs, policies and actions on minority populations and low income populations”***

Demographic Analyses

- To determine potential EJ issues, demographic analyses of the minority, low-income and indigenous populations were conducted
- Percentages of different social, demographic and economic groups within populations living near facilities were compared with total percentages of demographic groups nationwide

Demographic Analysis (cont.)

	Nationwide	Population with Cancer Risk at or Above 1-in-1 Million (pre-controls)	Population with Cancer Risk at or Above 1-in-1 Million (post controls)
Total Population	312,861,265	5,204,234	3,765,225
Race by Percent			
White	72	50	49
All Other Races	28	50	51
Race by Percent			
White	72	50	49
African American	13	28	31
Native American	1	1	1
Other and Multiracial	14	21	19
Ethnicity by Percent			
Hispanic	17	29	24
Non-Hispanic	83	71	76
Income by Percent			
Below Poverty Level	14	21	22
Above Poverty Level	86	79	78
Education by Percent			
Over 25 and without High School Diploma	15	23	23
Over 25 and with a High School Diploma	85	77	77

*There is no population with a Chronic Hazard Index above 1

Q&A

United States Environmental Protection Agency

Key Issues and Considerations in the Proposed Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards

Public Outreach Presentation
New Orleans, LA
June 26-27, 2014

Andrew Bouchard
U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC

Overview

- Refinery Flow Diagram
- Technical Considerations
  - Storage Vessels (Tanks)
  - Flares
  - Delayed Coking Units
  - Fenceline Monitoring
- More Information

Refinery Flow Diagram

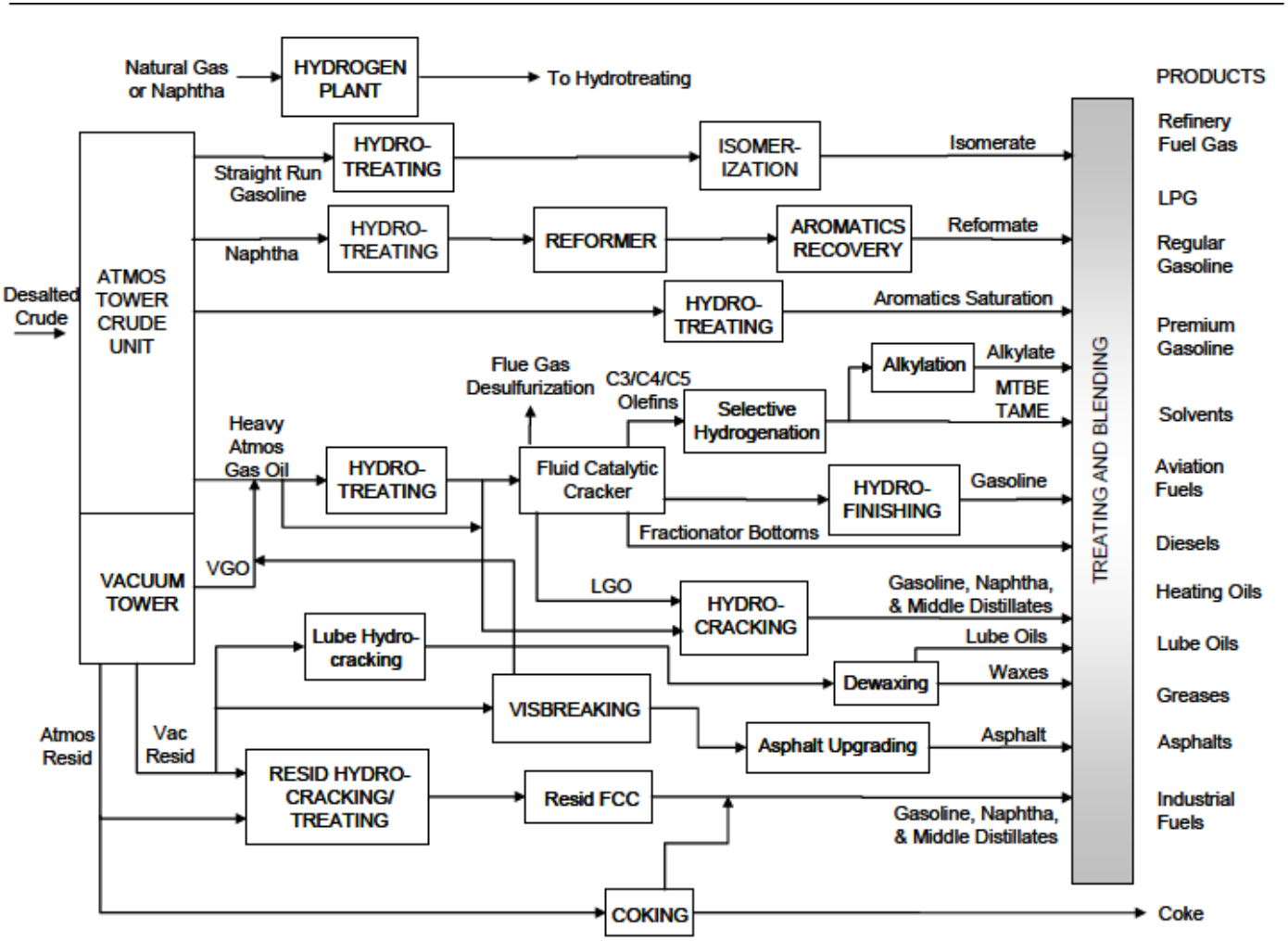
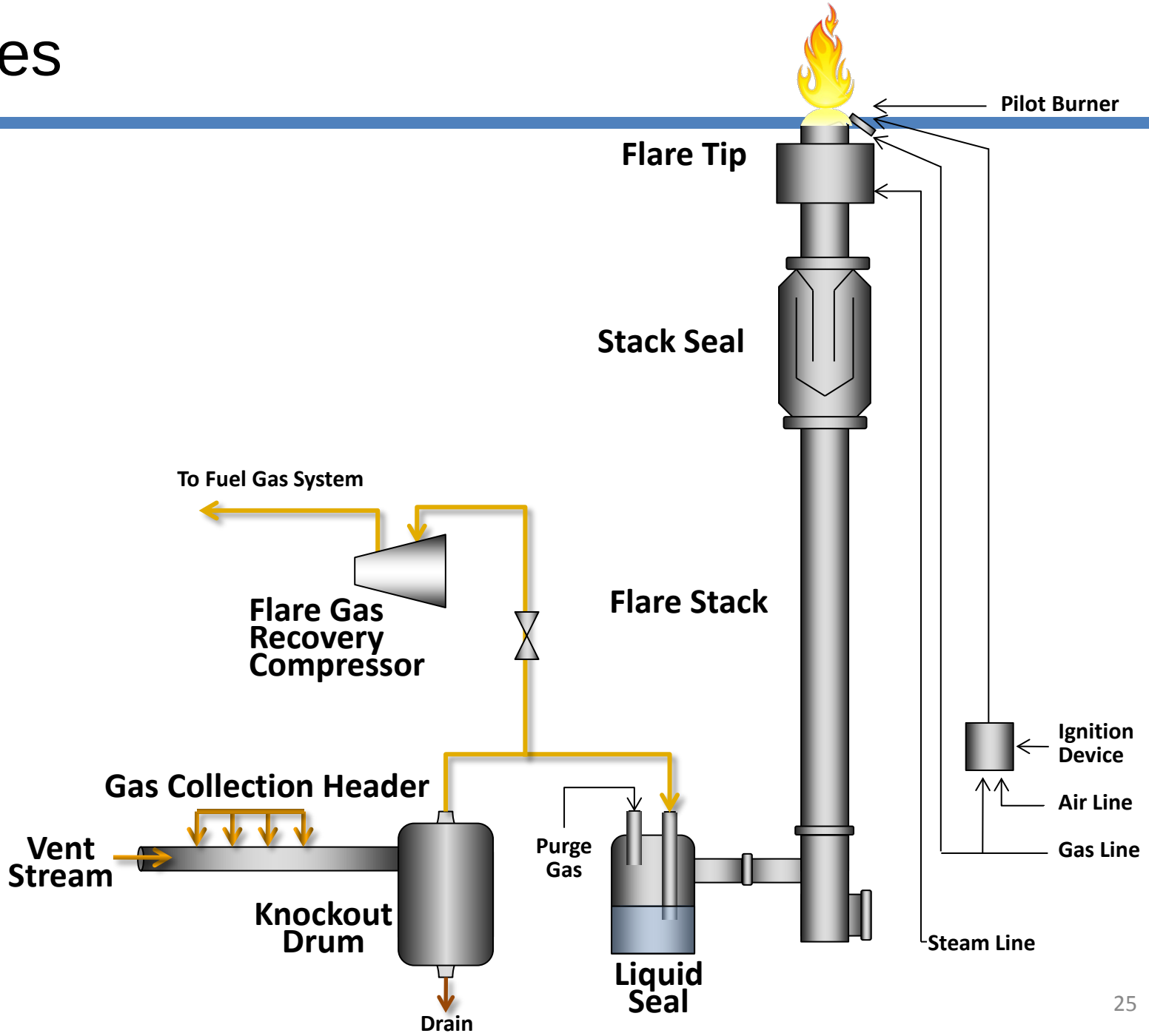


Figure 2-1. Typical Refinery Flow Diagram

Storage Vessels (Tanks)

- Refinery MACT CC currently requires control of existing storage vessels:
  - ≥177 m^3 (46,760 gallons) by volume
  - Stored-liquid max. true vapor pressure (VP) ≥1.5 psia
- Proposal would change these thresholds to also require control for:
  - Smaller tanks (≥20,000 gallons) storing liquids with VP ≥1.9 psia
  - Tanks with capacities >40,000 gallons storing liquids with VP ≥0.75 psia
- Proposal also requires additional equipment requirements for tanks with floating roofs
  - Guidepole controls
  - Fitting controls
- Represents 40% reduction in the baseline emissions for tanks

Flares


Pilot Burner
Flare Tip
Stack Seal
To Fuel Gas System
Flare Gas Recovery Compressor
Flare Stack
Ignition Device
Air Line
Gas Line
Gas Collection Header
Vent Stream
Purge Gas
Knockout Drum
Liquid Seal
Steam Line
Drain

Flare Operating Envelope

Black, smoky discharge indicates particulate emissions

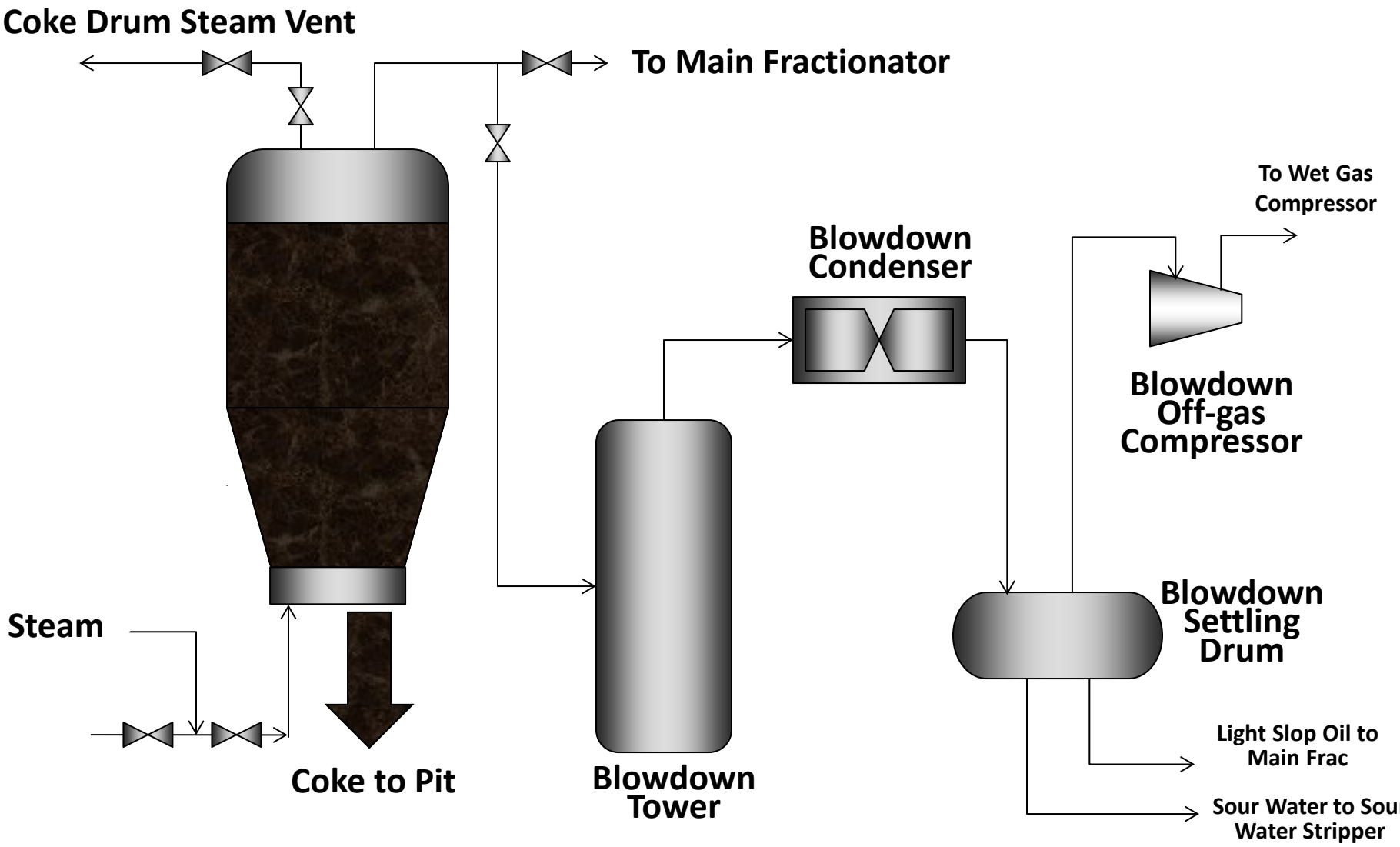
Preferred Flame (Luminous color)

Clear flames can cause poor combustion efficiency and emit hydrocarbon and CO pollutants

- Operating range may be tighter
- Additional supplemental fuel may be needed

Courtesy of John Zink

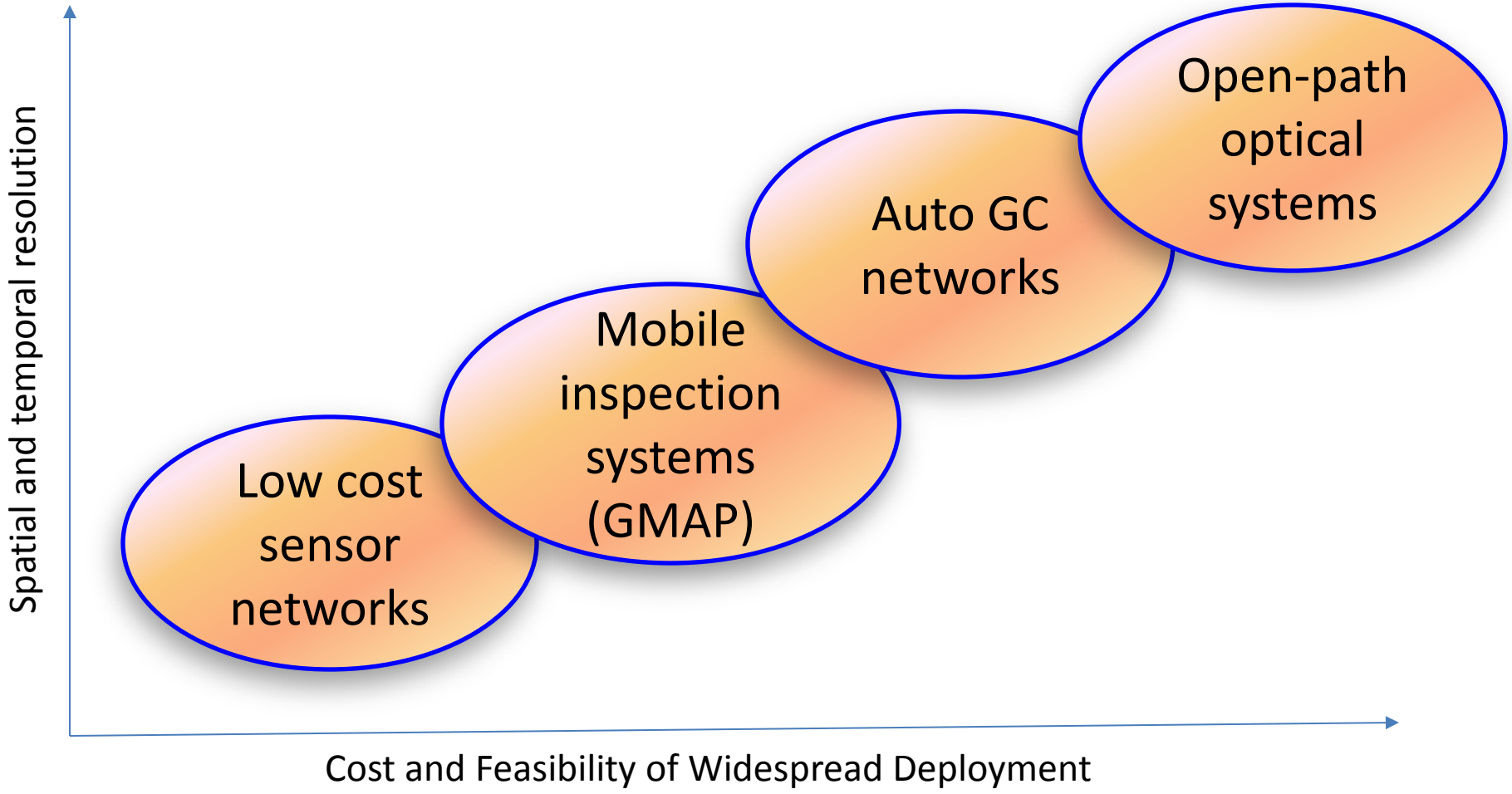
Delayed Coking Unit Vent Diagram



Delayed Coker Steam Vent

Monitoring for Assessment of Fugitives

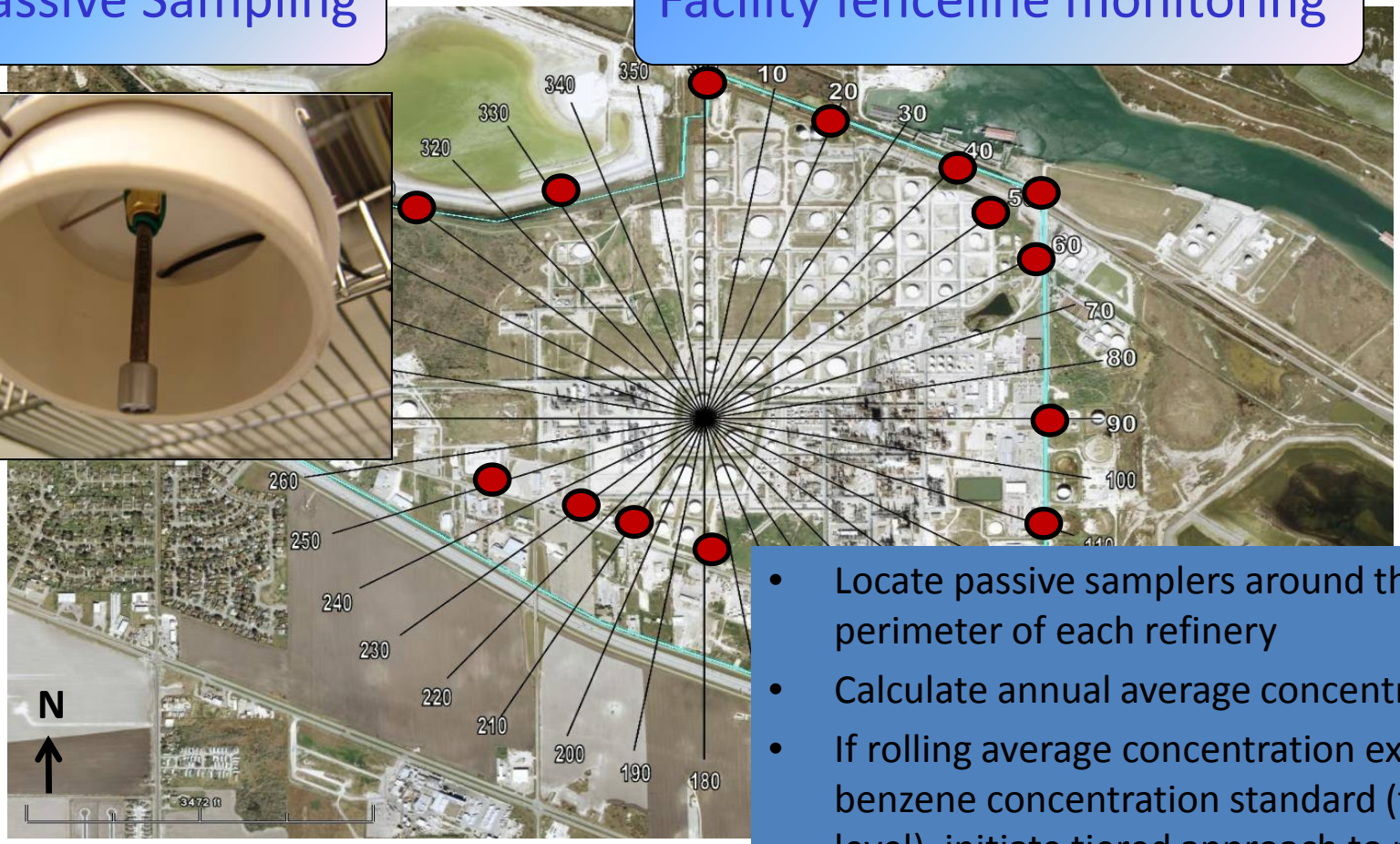
Different technologies and approaches to detect and *measure* pollutants over extended areas and time



Low-Cost Sensors Can Provide 24-7 Observation and Enable New Regulatory Approaches

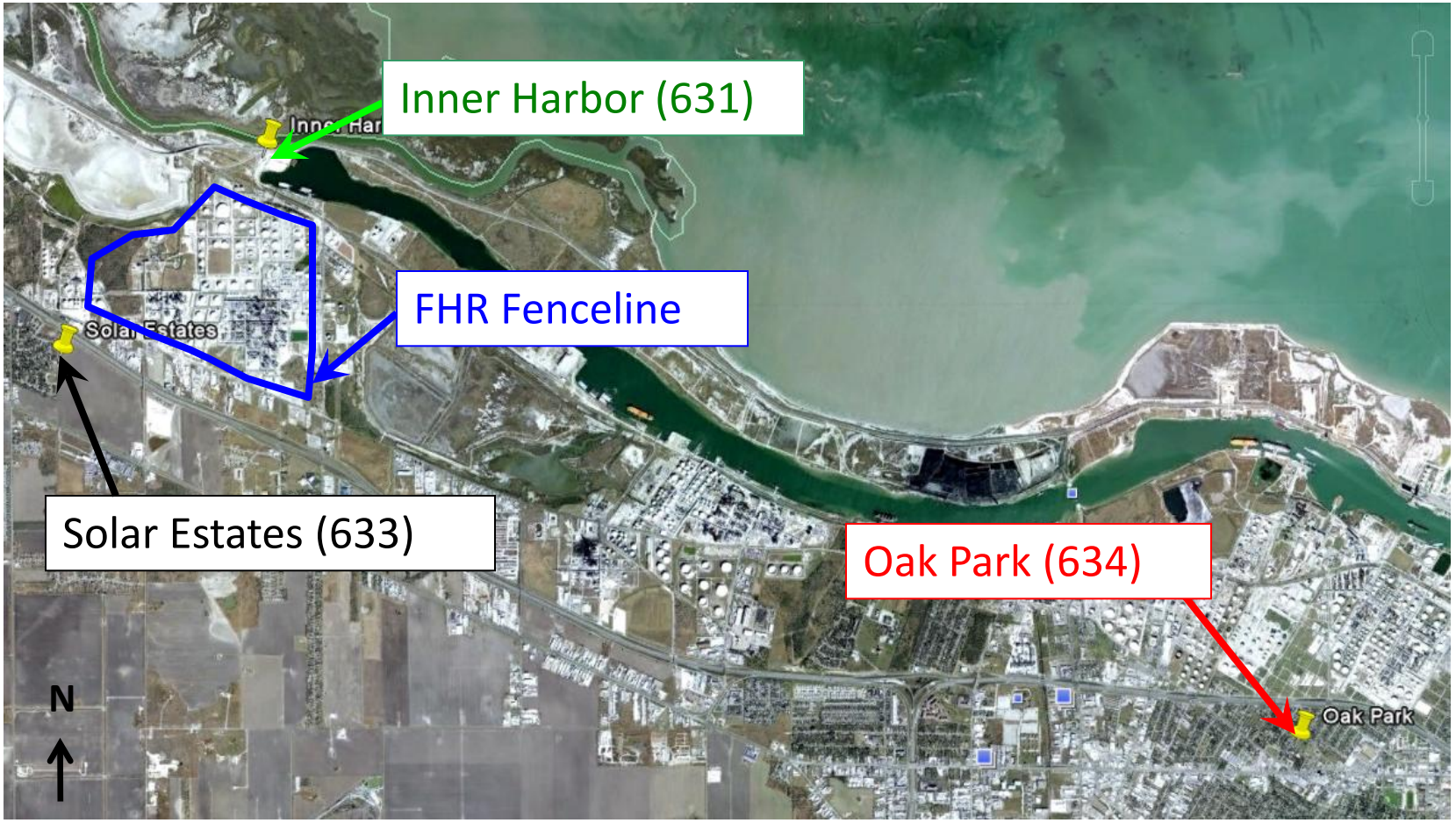
Passive Sampling

Facility fenceline monitoring

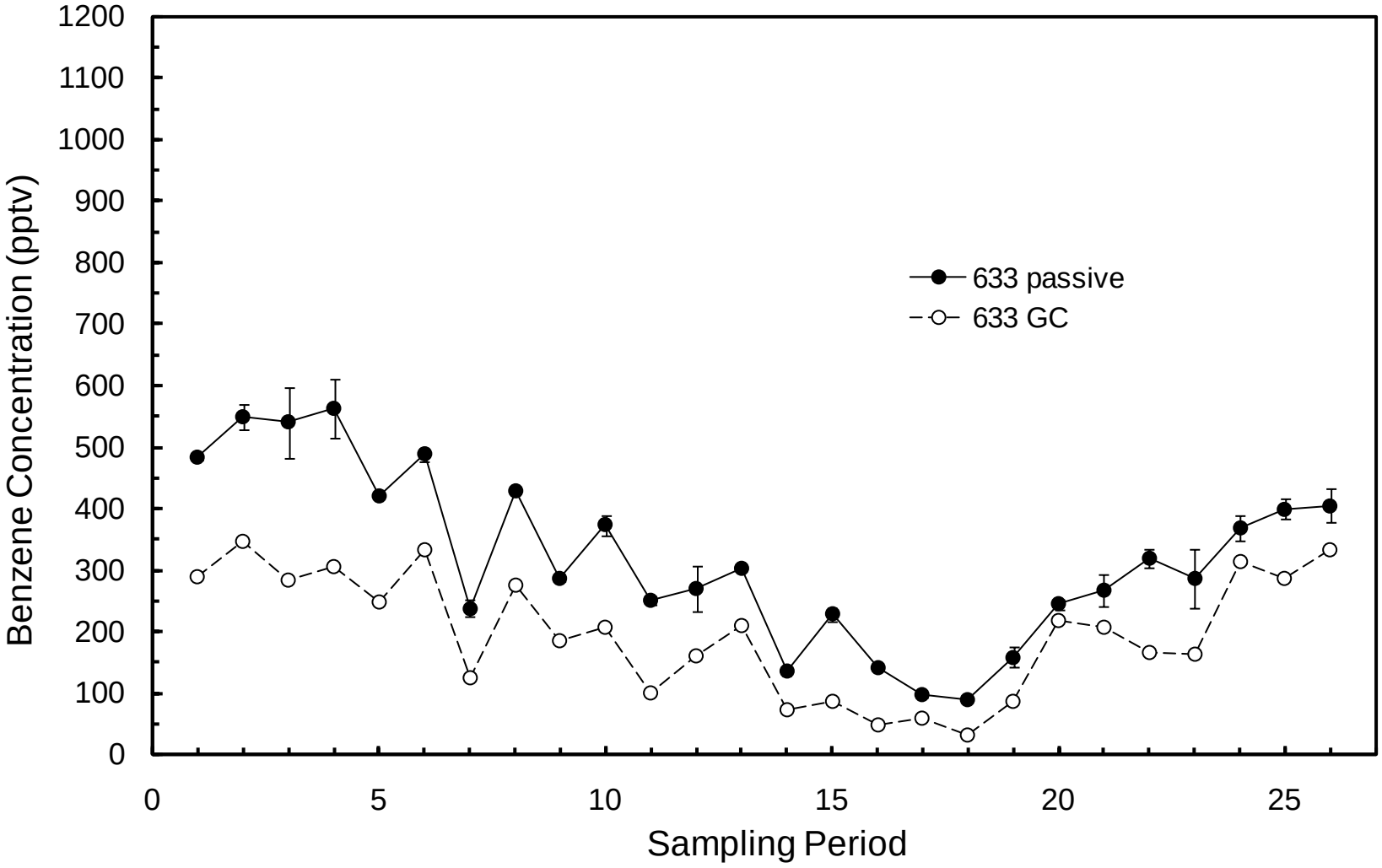


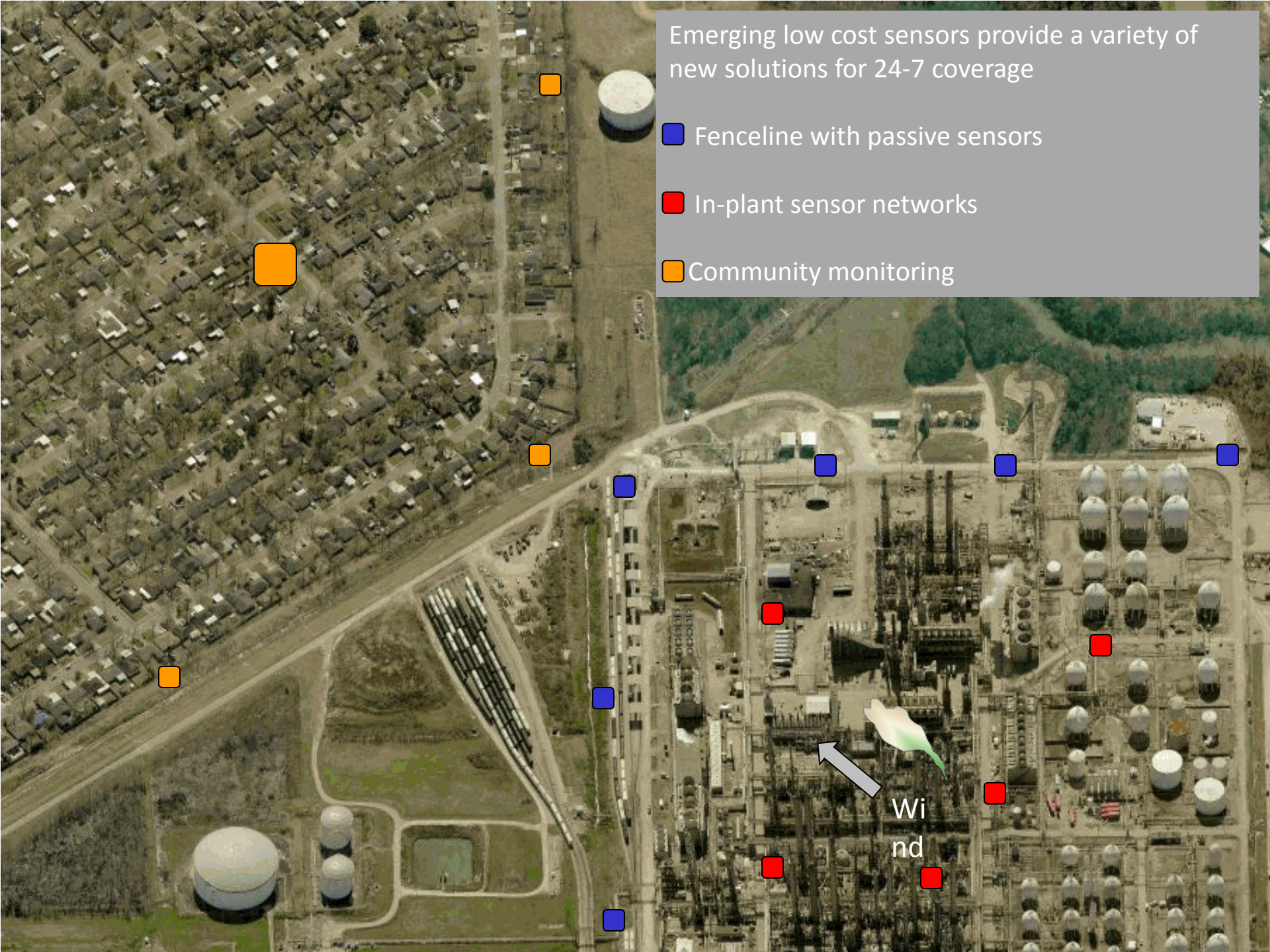
- Locate passive samplers around the perimeter of each refinery
- Calculate annual average concentration
- If rolling average concentration exceeds benzene concentration standard (the action level), initiate tiered approach to positively identify facility contribution and conduct corrective action to reduce emissions

Passive Monitor Locations (FHR, 633, 634)



Comparison of Passive and Auto GC at Solar Estates (site 633)




Emerging low cost sensors provide a variety of new solutions for 24-7 coverage
Fenceline with passive sensors
In-plant sensor networks
Community monitoring
Wi
nd

More Information

- Consolidated Petroleum Refinery Rulemaking Website
  - http://www.epa.gov/ttn/atw/petref.html
- EPA Contact Information
  - Brenda Shine, EPA Office of Air Quality Planning and Standards (919) 541-3608 or at shine.brenda@epa.gov
  - Andrew Bouchard, EPA Office of Air Quality Planning and Standards (919) 541-4036 or at bouchard.andrew@epa.gov

Proposed Rule Information

EPA Workshop for Environmental Justice Communities on Proposed Updates to Emission Standards for Refineries

Resources

The links below provide more information on the proposed rule:

Consolidated Petroleum Refinery Rulemaking Repository	http://www.epa.gov/ttn/atw/petref.html
Proposed Rule	http://www.epa.gov/ttn/atw/petrefine/20140515fr.pdf
Fact Sheet	http://www.epa.gov/ttn/atw/petrefine/20140515factsheet.pdf

Submitting Comments

EPA will accept comment on the proposal for 60 days after publication in the Federal Register. Comments, identified by Docket ID No. **EPA-HQ-OAR-2010-0682**, may be submitted by one of the following methods:

- **Federal eRulemaking Portal:** http://www.regulations.gov - follow the online instructions for submitting comments.
- **Email:** A-and-R-Docket@epa.gov - include docket ID No. EPA-HQ-OAR-2010-0682 in the subject line of the message.
- **Fax:** (202) 566-9744
- **Mail:** Send your comments to:

  Environmental Protection Agency
  EPA Docket Center (EPA/DC), Mailcode 28221T
  Attention Docket ID No. EPA-HQ-OAR-2010-0682
  1200 Pennsylvania Avenue, NW
  Washington, DC 20460

- **Express mail, commercial delivery, hand delivery or courier:** Such deliveries are only accepted during the docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information. Deliver your comments to:

  EPA Docket Center, Room 3334
  EPA WJC West Building
  1301 Constitution Avenue, NW
  Washington, DC 20004

The public comment period is anticipated to begin on June 30, 2014. Once the public comment period begins, the comment period will remain open for 60 days.

Upcoming Hearings and Events

The EPA will be holding two public hearings on the refineries rule:

- **July 16, 2014**, Banning's Landing Community Center, 100 E. Water Street, Wilmington, CA 90744
- **August 5, 2014**, Alvin D. Baggett Recreation Building 1302 Keene Street in Galena Park, TX, 77547

The hearings be held from 9 AM to 8 PM with a lunch break from 12 to 1 PM and a dinner break from 5 to 6 PM.

Points of Contact

For questions about the proposed rule

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To register for the public hearings

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For general questions about the public hearings

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For questions about facilities in your area

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